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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

NAME APPLICATION OF:  
Steven T. FINK

GROUP: 1763

SERIAL NO: 10/601,590

EXAMINER: Luz L. ALEJANDRO MULERO

FILED: June 24, 2003

FOR: PLASMA SOURCE ASSEMBLY AND METHOD OF MANUFACTURE

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s). No more than five (5) pages are provided.

I am the attorney or agent of record.

Respectfully Submitted,

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## PRE-APPEAL BRIEF CONFERENCE ARGUMENTS

### Description of Embodiments of the Invention:

Applicant's invention is directed to an improved plasma source assembly having a helical coil. As described in the background section of Applicant's specification, one problem with conventional plasma sources is the method and repeatability of mounting the helical coil. For example, in ESRF plasma sources, particularly those sources having a quarter wave or half wave resonant coil, the coil is tuned to a particular frequency by a labor intensive process of adjusting the length of the coil. Once the coil is tuned, changes in coil position can adversely affect the tuning, thereby requiring readjustment of the coil.<sup>1</sup> Applicant's invention as claimed in Claims 1 and 41 provides a structure for maintaining the helical coil in a predetermined position to minimize the need for retuning.

Specifically, Applicant's Claim 1 recites a plasma source assembly including an outer shield, a dielectric chamber wall, and a helical coil provided between the outer shield and the dielectric chamber wall. Also recited is a coil insulator coupled to at least one coil turn of the helical coil and between adjacent coil turns of the helical coil, and a cooling rod coupled to the coil insulator to hold the coil insulator and the at least one coil turn in a predetermined position thereby facilitating repeatable performance of the helical coil. Claim 41 similarly recites a plurality of cooling rods ... coupled to a helical coil to hold the helical coil in a predetermined position. Thus, independent Claims 1 and 41 require that the cooling rod(s) be coupled to the coil in order to hold the coil in a predetermined position.

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<sup>1</sup> See Applicant's specification at paragraph 12.

II. The Final Office Does Not Establish a *Prima Facie* Case For Rejecting Independent Claims 1 or 41

As discussed in the Amendment filed December 23, 2005, the cited reference to Boulos et al. includes a coil 31 completely embedded within a torch body 2 having fluid conduits 30 formed therein to carry cooling fluid throughout the torch body 2. However, the fluid conduits cannot be interpreted as cooling rods, are not coupled to insulators and in no way hold the coil in a predetermined position. As also discussed in this response, while the cited reference to Hull discloses water supply tubes 36 and 32, these tubes are not coupled to a coil insulator to hold the insulator and the coil of the helical tube in a predetermined position.

The Office Action responds to these arguments by stating,

***"it is inherent that the cooling conduits 30-36 are rods,***  
alternatively, Hull discloses an apparatus comprising cooling rods for introducing and circulating cooling fluid in the apparatus (see, for example, Fig. 1 and its description). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Boulos et al. as to further comprise cooling rods, as taught by Hull, ***since such a structure is known and used in the art to introduce and circulate cooling fluid in an apparatus.***<sup>2</sup>

Applicant respectfully submits that this statement does not establish a *prima facie* case for either anticipation or obviousness of Claims 1 or 41 under PTO practice.

First, M.P.E.P. § 2112(iv) explicitly states that the Examiner must provide rationale or evidence tending to show inherency. The above quoted statement is completely conclusory and provides no evidence or argument whatsoever. Therefore, inherency has not been properly established in the Office Action. Second, it is well settled that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103, the Examiner must establish that the combination of prior art references teach all claim

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<sup>2</sup> See Office Action at page 3, lines 3-9.

limitations, and further there must be some suggestion or motivation in the references to modify the reference or combine the reference teachings. These requirements are also not met by the above quoted statement in the Office Action.

While Hull discloses water tubes, 32 and 36, as noted above, this reference does not disclose that such tubes are coupled to a coil insulator (or coil) to hold the coil insulator and the at least one turn (or coil) in a predetermined position to facilitate repeatable performance of the helical coil. The final Office Action merely concludes that this limitation is met by the combination of Boulos et al. and Hull without any explanation of how; this is improper.

Further, the final Office Action concludes that one of ordinary skill in the art would be motivated to combine the water tubes of Hull with Boulos et al. merely because “such a structure is known and used in the art to introduce and circulate cooling fluid in an apparatus.” However, the mere fact that references can be combined or modified is not sufficient to establish a *prima facie* case of obviousness.<sup>3</sup> Further, the prior art must suggest the desirability of the claimed invention.<sup>4</sup> The final Office Action points to no prior art in support of its statement of motivation to combine Hull and Boulos et al. Thus, the Office Action also does not establish a *prima facie* case of obviousness based on these references.

The final Office Action also finds that Claims 1 and 41 are anticipated by Edamura et al. This reference discloses a plasma treatment device having an upper assembly with a spiral antenna 9. As seen in Figure 3, the antenna 9 is embedded within an insulating material 25b, but has a gap surrounding the antenna for flowing a heat transfer gas therein. A cooling duct 26 is formed as a cavity within the insulating material, and feed lines 27a and 27b carry cooling fluid to the duct 26. The final

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<sup>3</sup> See M.P.E.P. § 2143.01(iii) citing In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

<sup>4</sup> See M.P.E.P. § 2143.01.

Office Action cites the feed lines 27a and 27b as meeting the cooling rod limitation of Claim 1. However, there is no indication in Edamura et al. that the lines 27a and 27b are coupled to the insulating material 25b. Rather the lines appear in the figures of Edamura et al. to lead to the duct 26 in order to provide a feed path for the fluid. Further, there is no hint or suggestion in Edamura et al. that the lines 27a and 27b hold the insulating material and/or coil in a predetermined position. Again, the final Office Action does not explain how these limitations are met and thus also does not provide a *prima facie* case of anticipation based on Edamura et al..

III. The Final Office Action Does Not Establish a *Prima Facie* Case For Rejecting Dependent Claims 8-13 and 41-44

For the reasons stated above Applicant's independent Claims 1 and 41 patentably define over the cited references to Boulos et al., Hull, and Edamura et al. alone or in combination. Applicant further notes, however, that dependent Claims 8-13 recite detailed structural features of the cooling rod in relation to the helical coil, a plenum cooling plate, spacers, and coil insulators. Similarly, Applicant's Claims 41-44 recite detailed structural features of the helical coil in relation to coil insulators, as well as the alignment of the insulator by way of an alignment groove that the cooling rod fits within. Thus, these dependent claims further define structural features of the invention that mitigate the coil readjustment problem of the prior art by using a cooling rod to hold the helical coil in a predetermined position. Once again, however, the final Office Action simply identifies elements of these claims within the cited references, and concludes that because these elements are individually known in the art, that this provides motivation for combining the elements to arrive at the claimed invention. Alternatively, the Office Action appears to cite legal precedent in support of the obviousness conclusion without even citing the case law, let alone comparing

the facts of such case law to the present application as required by MPEP 2144.04.

Applicant submits that this is improper and cannot support a *prima facie* case of obviousness for the detailed claim limitations provided in Claims 8-13 and 42-44.

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